SC&A S. COHEN & ASSOCIATES
AN EMPLOYEE-OWNED COMPANY

December 15, 2005

Mr. David Staudt
Center for Disease Control and Prevention
Acquisition and Assistance Field Branch
Post Office Box 18070
626 Cochrans Mill Road – B-140
Pittsburgh, PA 15236-0295

Re: Contract No. 200-2004-03805**,** Task Order 1: Draft Issue Resolution Matrix for Findings and Key Observations Contained in the Rocky Flats Plant Site Profile Review (Rev. 00)

Dear Mr. Staudt:

Find attached a draft Issue Resolution Matrix for findings and key observations contained in the Rocky Flats Plant Site Profile Review submitted by SC&A to the Advisory Board on Radiation and Worker Health and NIOSH on December 6, 2005. This matrix was prepared at the request of NIOSH and the Advisory Board's Working Group during the latter's last meeting in Cincinnati, Ohio, on November 16, 2005. The request was for SC&A to take the lead to prepare a draft Issue Resolution Matrix modeled after that of the Task 4 dose reconstruction evaluations for each site profile review submitted.

The attached matrix is based on the findings and observations cited in the report, and is provided in relative priority with respect to our assessment of the technical significance and potential influence on dose reconstruction. (At this point, we do not believe there is a natural "break point" for establishing first-tier versus second-tier findings, although the Board may want to provide direction in that regard.) It would also seem prudent to develop some system of cumulatively compiling and tracking such issues for review and closure as they are submitted. SC&A is in the process of developing similar matrices for other site profile reviews completed this past year.

We note that NIOSH has recently revised the site profile for Rocky Flats. The enclosed draft matrix does not incorporate any new information contained in those revisions. However, we are in the process of reviewing the revised technical background documents (TBDs) to determine the degree to which the new revisions address the issues.

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As with the Y-12 and MCW reviews, the next step would be for the Board and NIOSH to review this draft matrix and provide any comments for purposes of developing a representative and clear tool for subsequent NIOSH response and issue resolution working sessions.

We appreciate this opportunity to clarify issues for resolution for the Rocky Flats profile review.

Sincerely,

John Mauro, PhD, CHP
Project Manager

cc: P. Ziemer, PhD, Board Chairperson
Advisory Board Members
L. Wade, PhD, NIOSH
L. Elliott, NIOSH
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Project File (ANIOS/001/08)

Draft Issue Resolution Matrix for Findings and Key Observations Contained in the December 6, 2005, SC&A Review of the Rocky Flats Plant Site Profile Review (Rev. 00)

Summary of Task 1 Rocky Flats Plant Site Profile Findings Matrix – Vertical Issues

Comment Number	TBD Number	Finding Number	Issue Number	Issue Description	SC&A Page No.	NIOSH Response	Board Action
Primary Issue							
1	ORAUT-TKBS-0011-5	1	5.1	Suggested use of urine bioassay MDA values for plutonium and americium appear low and are likely to yield body burdens/organ doses that are proportionately low and, therefore, claimant unfavorable.	Pg. 36		
2	ORAUT-TKBS-0011-5	2	5.2.1	The approaches regarding solubility need to be reviewed, particularly for Type "S" or "super-S" plutonium compounds whose high insolubility may lead to more exposure to gastrointestinal and respiratory tract organs. The sensitivity of the bioassay methods was not adequate to detect incidental intakes of insoluble compounds, and also the bioassay methods applied at that time were not appropriate.	Pg. 40		
3	ORAUT-TKBS-0011-4, 5	2	5.2.3	The use of the assumed default particle size of 5 μm AMAD needs to be reconsidered for those RFP operations for which actual particle size measurements exist (e.g., an 0.3 μm mass median diameter for airborne particles involved in at least two fires at RFP).	Pg. 42		
4	ORAUT-TKBS-0011-5	2	5.2.6.2	Uncertainties are not addressed in the TBD regarding the ^{241}Am assay of plutonium processed at RFP and how lung counting was calibrated to these values, especially in view of different ^{241}Am proportions at different processing steps and different plutonium ages.	Pg. 54		
5	ORAUT-TKBS-0011-5	2	5.2.6.2	The assumptions (full equilibrium) regarding the methodologies to assess the internal exposure to depleted uranium based on estimates of ^{238}U activity may not be claimant favorable for some circumstances.	Pg. 55		

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Primary Issues							
6	ORAUT-TKBS-0011-6	3	5.6.2, 5.6.4.1	Interpretation of NTA film data and correction of recorded dose for workers who were not included in the NDRP is not evident.	Pg. 74, Pg. 77		
7	ORAUT-TKBS-0011-6	3	5.5.2.1	There is a need to use neutron-to-photon ratios and/or film/TLD comparisons to correctly determine past neutron doses. Workers were exposed to neutrons in the NTA film period at lower energy levels than the dosimeter is capable of measuring. It is important to generate correction factors for under-monitored workers or for monitored-worker missed dose. This is especially important for non-Pu workers covered by the NDRP Report, and workers involved with the Pu tetraflouride and Pu machining operations during the early period.	Pg. 75		
8	ORAUT-TKBS-0011-6	4	5.5.5, 5.5.6	The assignment of isotropic or rotational instead of anterior-posterior geometry in the TBD may not reflect the true radiation dose to some workers. In addition, the issue of angular dependence for different types of radiation and dosimetry systems through the years is not sufficiently addressed.	Pg. 71, Pg. 72		
9	ORAUT-TKBS-0011-4, 5, and 6	6	5.11	The site profile, while incorporating methodologies for assignment of missed dose, has not adequately bound exposure conditions, compensated for calibration errors and technical deficiencies, and addressed possible data integrity issues, including possible zero entries in the dose records when badges were not returned, all of which may contribute to missed dose.	Pg. 101		

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Primary Issues							
10	ORAUT-TKBS-0011-5	8	5.4.1, 5.8.1, 5.9.2	The site profile does not adequately address potential exposure contribution from uranium and other radiation sources shipped or processed onsite. Potential dose from neptunium, thorium, curium, tritium, and ^{236}U are not addressed in the TBD. The TBD makes only a passing reference to ^{233}U, which was handled at RFP between 1965 and the early 1980s in kilogram quantities.	Pg. 66, Pg. 82, Pg. 91		

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Secondary Issues							
11	ORAUT-TKBS-0011-5	2	5.2.2 5.2.5	There is limited guidance for use by the dose reconstructor regarding the process and assumptions that should be used to calculate internal dose. Notably, this TBD does not provide guidance for assessment of dose for unmonitored workers, nor does it specifically address what "missed dose" may exist and how it is to be addressed. [1] There is no specific guidance for internal dose assessment in case of wound contamination mainly for the lymphoma cases.	Pg. 42 Pg. 50		
12	ORAUT-TKBS-0011-5	4	5.5.9	There is evidence that "elevated ambient levels of external radiation" occurred at RFP with routine day-to-day storage of control dosimeters in these elevated areas. This is an issue of which NIOSH is aware, but has not adequately addressed.	Pg. 73		
13	ORAUT-TKBS-0011-6	4	5.5.7, 5.5.8	There was a potential for partial body exposure in excess of the whole-body dosimeter reading (e.g., exposure to the head, face, or unshielded parts of the body). This issue has not been identified in the TBD.	Pg.72 Pg. 73		
14	ORAUT-TKBS-0011-4	5	5.10.1 5.10.2	The occupational medical dose TBD does not adequately address the contribution of historic radiation exposures from occupationally necessitated medical x-ray exposure.	Pg. 97 Pg. 98		

[1] SC&A recognizes that "workbooks" have been generated by NIOSH as a means to provide implementation guidance to the dose reconstructor; these resources are under review as part of the FY2006 program.

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Secondary Issues							
15	ORAUT-TKBS-0011-5	7	5.3	The internal TBD does not consider potential contribution of the ingestion pathway. The ingestion dose is often higher than dose received from inhalation with certain organs.	Pg. 59		
16	ORAUT-TKBS-0011-4	9	5.9.3	Routine and episodic airborne releases have been brought into question, based on the adequacy of the air monitoring results. Incidental releases determined by the State of Colorado are higher than values used in the TBD.	Pg. 91		
17	ORAUT-TKBS-0011-4	9	5.9.1	The dose from resuspension of soil contaminated with plutonium, americium and other radionuclides should be taken into consideration for soil contamination areas throughout the site, and should not be limited to the 903 Pad without some justification.	Pg. 88		
18	ORAUT-TKBS-0011-6	10	5.7.3	Hand and wrist doses are not adequately addressed in the external dosimetry TBD.	Pg. 80		
19	ORAUT-TKBS-0011-6	11	5.7.4	The TBDs do not address the potentially significant doses from industrial x-ray and neutron generators for R&D and non-destructive analysis.	Pg. 81		
20	ORAUT-TKBS-0011-1, 4, 5, and 6	Observation 1	5.7.5	The RFP site profile does not address post-production (post-1992) operations and worker exposure, including from decontamination and decommissioning activities, waste management, nuclear material storage, and nuclear material stabilization.	Pg. 82		
21	ORAUT-TKBS-0011-4	Observation 2	5.9.2	The overlap in definition of phases of operation requires further study to identify dose from radionuclides such as tritium, thorium, enriched and depleted uranium, $^{239/240}$Pu, ^{241}Pu, and ^{241}Am, which can be related to specific environmental releases.	Pg. 91		